

# Phenology in AEMET

*Cistus ladanifer* (jara pringosa)

A brief report about  
current activities

April 2014



# The new Pheno Database

- The procedure to digitize the phenological information and to manage the data operation in a more robust way has been already solved. The structure of the new ORACLE pheno database has been completed and its performance has been tested.
- The metadata of each new phenological station are documented and archived before the station is added to the phenological network.
- The rules of equivalence to move from the old phenological encoding norms to BBCH system has been completed and the extended BBCH scale is already used for coding the new plant phenological observations.
- In combination with the former phenological network based on volunteer people, new phenological observations have recently begun to be carried out by AEMET staff.

# Data entry procedure into the new phenological Database

- From the AEMET observatories the phenological application could be directly accessed (via intranet) and the encoded files for the phenological observations at the station could be introduced.
- Once registered in the database a new pheno station and after the metadata and the selected species that should be observed by the collaborator, the observer can use the program that creates the data message corresponding to the encoded phenological information. This information is directly sent to the Pheno Database via ftp or by email.
- Phenological data could be also manually entered into the Database from the AEMET headquarter or from Regional Offices. This is the method that has to be used for incorporate in the DB the historic archives which are currently stored on paper (need for more human resources to undertake this task).

# Phenology Application (User's Guide)

## Area of Climatology and Operational Applications

### AEMET

*Interface for entering into the pheno DB the observations for a specific station.*

**Fenología AEMET: Alta de Observaciones**

Ind. Fenológico	Indicativo	Nombre de estación	Provincia	Altitud	Latitud	Longitud
F4316	4316	TAMUREJO	BADAJOS	59	38°52'N	9°45'44'W

Zona seleccionada: Zona de rafia con cerea y llano Variedad seleccionada: Plantas agrícolas/Gramíneas/Triticum/...

Código	Descripción
0	Zona de rafia con cerea y llano

Código	Grupo	Subgrupo	Género	Especie	Especie (nombre común)	Subespecie
40	Plantas agrícolas	Frutales de pepita	Pyrus	Pyrus communis	peral	esp
50	Plantas agrícolas	Garbanzo	Cicer	Cicer arietinum	garbanzo	esp
52	Plantas agrícolas	Gramíneas	Avena	Avena sativa	avena	esp
54	Plantas agrícolas	Gramíneas	Hordeum	Hordeum vulgare	cebada	esp
50	Plantas agrícolas	Gramíneas	Triticum	Triticum aestivum	trigo blando	esp
55	Plantas agrícolas	Granado	Punica	Punica granatum	granado	esp

Cód. obs	Fecha	Estado	Cód estado	Estado (código antiguo)	Cód antiguo	Comentarios	Tratamiento	Riego	Flag
0000003	20/04/2012	30% de la espiga...	53X	Espegado	ES				0
0000002	28/02/2012	Primer nudo por l...	31X	Primer nudo del...	TA				0
0000001	18/02/2012	Comienzo del ma...	21X	Nudo de anjames...	NU				0

Guardar observaciones      Nueva observación      Salir

## Need of revising the equivalences between BBCH with the former encoding system....

Some problems have recently arisen concerning the equivalence of BBCH with the former encoding of pheno observations. So, a new revision of the equivalences has been undertaken.

Example:  
Plants with female flowering and male flowering in the same or different stem...

63M → for male flowers  
63F → for female flowers

Introduction of varieties in the  
new DB



*Corylus avellana*  
(hazel)

# Quality control issues

- Different quality control criteria have been implemented in the new Pheno Database. So, when the encoded data that are entered into the DB do not meet these criteria, a error warning is displayed in the interface screen.
- A set of quality controls criteria refers to a minimum period of time that must elapse in order to record again a certain phenological stage.
- Another set of quality controls criteria are connected with having a non-consistent sequence of phenological stages...

*Prunus avium* (cherry-tree)



# Planned activities for 2014

- Continue expanding the phenological network including observations from the AEMET main stations. Pheno data will be directly introduced from each observatory in the new phenological Database.
- Performing a study to determine which species/ varieties could be observed in a set of new phenological observation stations located in five experimental farms from different Agricultural Research Institutes in Spain.
- Generate training material for the observation of the pheno phases for each specie / variety, the BBCH code and the use of the data entry application.
- To allocate additional staff resources to scan and enter into the ORACLE pheno DB the historical records of the selected phenological stations (15).

## New phenological stations in AEMET:

- Observatories placed at more than 1900 m. of altitude

IZAÑA (2.373m height above sea level  
(Teide-Tenerife Island)

NAVACERRADA (1.984 m. height above  
sea level )  
(Puerto de Navacerrada)

→ **Study and enlist some  
new species, which are  
endemic in some cases.**



Surroundings of  
the station of  
Navacerrada.



- Igueldo Observatory (San Sebastián) with phenological observations on the observatory parcel and surrounding areas.
- Guadalajara Observatory with phenological observations on the observatory parcel and in the surrounding areas with natural vegetation characteristic of the Alcarria region.



## Estación Fenológica. Guadalajara. F3168D

Zona 1 Jardín Agroambiental del Observatorio. 721 m

Zona 2: Campos de Iriépal. 750-850 m; 150 Ha

Parcela A Km 1-2 GU-9005 (750-800 m)

Parcela B Ermita de la Soledad (780 m)

Parcela C Barranco del Val (800-850 m)

¡¡Thanks for your attention!!

